



COMMONWEALTH of VIRGINIA

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MEMORANDUM

TO: Regional Directors, Director – Air Permits, Director – Air Compliance,
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CC: Richard F. Weeks, Chief Deputy Director
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FROM: Michael G. Dowd – Director, Air Division *MGD*

SUBJECT: APG-574: Exemption of Qualified Fumigation Facilities

DATE: June 21, 2011

Purpose:

The purpose of this document is to provide information to air permitting staff regarding implementation of the Qualified Fumigation Facilities (QFF) permitting exemption. The effective date for the QFF exemption is July 1, 2011. This guidance is not intended to cover every situation but should be applicable in most scenarios. Check with the regional air permit manager and/or central office staff if a deviation from the guidance is necessary.

Background:

Chapter 393, 2011 Acts of Assembly amended § 10.1-1308 of the Code of Virginia by adding a section numbered 10.1-1308.01, which allows a permitting exemption for QFF. Although this law exempts QFF's from obtaining an Article 6 permit, the QFF's are required to submit extensive information regarding their fumigation operations. This information will be submitted to central office staff to be entered into a database of small fumigation operations in Virginia.

The second part of the law requires the Virginia Department of Environmental Quality (DEQ) to conduct enhanced air monitoring at fumigation sites by July 1, 2013. The Virginia Department of Health will evaluate the monitoring results and assist DEQ to determine if additional measures are necessary to protect public health.

Applicability:

Only fumigation operations that meet the definition of a QFF are eligible for the exemption. A QFF must meet the following criteria:

1. The exemption applies only to commodity fumigation operations that fumigate with a hazardous air pollutant (HAP) regulated under §112(b) of the Clean Air Act. In most cases the fumigant will be either methyl bromide or phosphine. A commodity is a tangible good or product that is for sale or barter. Examples may include but are not limited to grains, nuts, tobacco, furniture, fruit, logs, etc.
2. This legislation does not apply to facilities otherwise exempt from Article 6 permitting for state toxics. Since toxic pollutant exemption levels are relatively low for the fumigation pollutants, it is anticipated criteria pollutant exemption levels will not be exceeded. Methyl bromide is a volatile organic compound (VOC) but phosphine is neither a VOC nor a particulate. State toxic pollutant exemption formulas can be found in 9 VAC Chapter 60, Article 5 and calculated exemption threshold levels for each state toxic pollutant can be found on the Air Toxics page of the DEQ website.
3. Potential to emit (PTE) of the QFF must be less than 10 tons per year of any HAP or 25 tons per year of any combination of HAPs. If a facility is determined to have a PTE above the major HAP threshold level, the facility will be instructed to submit a Form 7 for either an Article 6 permit or a state operating permit in order to limit the facility's potential to emit. Facilities with actual emissions over the major HAP threshold levels will be required to submit an application for a Title V permit and may be required to submit an application for an Article 7 permit (§112(g) case-by-case MACT) if the facility was constructed after December 27, 1996. Caution must be taken in determining PTE for permitting applicability. See section below on calculating PTE for fumigation facilities and sample calculations.

In-transit fumigations (normally railcar but could be other modes of transportation) where the planned aeration is scheduled to occur outside of Virginia are not subject to State Air Pollution Control Board regulations.

Distance/Monitoring Requirements

In order to qualify for the exemption, the fumigation facility must meet at least one of the following requirements:

1. Maintain a distance of at least 300 feet from the fence line or property line if the property is not fenced or 300 feet from an area not regularly occupied by the public. Examples of areas not regularly occupied by the public could include but is not limited to vacant lots, adjacent fields or wooded areas not used for recreational purposes. DEQ may waive this requirement on a case-by-case basis.
2. Employ a capture and control system for the fumigation operation.

3. Monitor the fence line or property line if the property is not fenced during fumigation and aeration operations using appropriate monitoring equipment so that fumigant ambient concentrations do not exceed the more stringent of either the Department of Labor and Industry exposure limits or the parts per million standards stipulated in the federally approved pesticide labeling of the fumigant in use.

Signage Requirements

Signs notifying the public of fumigation operations must be posted prior to fumigation operations. The signs must be visible and legible at the fence or property line closest to any public right-of way. The signs must remain in place until completion of the aeration process and must conform to the format for placards mandated by the federally approved fumigant label.

Notification Requirements

Facilities that are covered by the QFF exemption are responsible for completing and submitting (preferably by e-mail) a two part form consisting of an Initial Notification section and a Post Fumigation section. The Initial Notification section of the form must be submitted prior to commencing the planned fumigation event. Since prior DEQ approval is not required, there is no minimum time required for the Initial Notification portion of the form to be submitted. After completion of the fumigation event, the form must be resubmitted within four business days with the additional information required in the Post Fumigation section of the form. A copy of the form is included as Attachment B.

The form should be submitted to the Air Toxics Coordinator at Patricia.Buonviri@deq.virginia.gov. When submitting the form, it is requested that the e-mail subject line contain the following: **QFF Notification Form**. Should any regional office receive the form (other than as a copy), the form should be forwarded to the above email address.

Central Office staff will collect the information from each fumigation operation and enter it into a spreadsheet for tracking. This information will be used to identify locations where fumigation operations are recurring.

No exemption letters will be sent. Central Office staff will notify the facility if a determination is made that the facility does not qualify for the exemption and a permit is required. The appropriate application will be supplied to the facility.

Calculating Potential to Emit (PTE) for Fumigation Operations:

For locations where fumigation occurs only once per year, it will be assumed the PTE for the location is the actual amount of fumigant used. For hourly emissions, assume that all of the fumigant is emitted in the first hour. The total amount of fumigant used for the location would be both the annual and hourly value.

For locations where fumigations occur no more than four times per year, the hourly emission rate would be determined as above. However, the annual rate would be the sum of all planned fumigation events for the year.

For locations where fumigation operations occur on a more frequent basis (more than 4 times a year), the PTE should be calculated based on an 8760 hour basis taking into consideration operational restrictions.

Sample Calculations

The following examples are for illustrative purposes only. Set-up times as well as fumigation and aeration periods used in these examples are all hypothetical. The actual parameters to be used in calculating PTE should be supplied by the QFF for the particular fumigation event.

State toxic pollutant exemption formulas can be found in [9 VAC Chapter 60, Article 5](#) and calculated exemption threshold levels for each state toxic pollutant can be found on the DEQ [Air Toxics](#) page.

Permit exemption threshold levels for methyl bromide and phosphine are provided below:

Methyl Bromide:	Hourly:	1.254 pounds per hour (lb/hr)
	Annual:	2.755 tons per year (tpy)
Phosphine:	Hourly:	0.0462 lb/hr
	Annual:	0.0609 tpy

Example 1

One container with furniture imported from another country was found to contain a quarantined pest. The container is placed under quarantine until the container can be fumigated with phosphine. The fumigation facility uses 0.02 pounds of phosphine to fumigate the container. This is an isolated occurrence and fumigations are not normally conducted at this location. The hourly and annual emission rate would be 0.02 lb/hr and 0.000001 tons per year. These rates fall below the permitting threshold values for phosphine. The facility is exempt under Article 6 and does not qualify for the QFF exemption. The facility is not required to submit the QFF notification form.

Example 2

A flour mill conducts an annual methyl bromide fumigation of the facility. The fumigation requires 30 pounds of methyl bromide. Assuming all of the methyl bromide is aerated in the first hour, hourly emissions would be 30 lb/hr. Because the facility only fumigates once per year, the annual emissions would also be 0.015 tpy. Since the hourly emission rate exceeds the permit exemption threshold level for methyl bromide and the annual threshold is below major source

levels, the facility qualifies for the exemption. No permits are required, but the QFF form must be submitted both before and after the fumigation event.

Example 3

A company operates one methyl bromide fumigation chamber to fumigate fruit. Each fumigation cycle requires 10 pounds of methyl bromide and one complete fumigation cycle is 48 hours (includes set-up time, fumigation and aeration period). Assume all the methyl bromide is aerated in one hour. Hourly emissions of methyl bromide would be 10 lbs/hr. The number of possible fumigation cycles annually would be 8760 hours divided by 48 hours per cycle = 182.5 fumigation cycles per year.

$10 \text{ lb/fumigation cycle} \times 182.5 \text{ cycles per year} \times \text{ton}/2000 \text{ lb} = 0.9125 \text{ tons per year}$
Both the hourly and annual methyl bromide emissions exceed the corresponding exemption threshold levels but are less than the major source threshold so the facility qualifies for the QFF exemption based on emissions. The annual PTE for methyl bromide is less than 10 tons per year. The facility does not require a permit to limit its PTE of methyl bromide.

Example 4

A company plans to construct a log fumigation facility. The fumigations will take place inside a warehouse built for that purpose. The facility will fumigate both hardwood and softwood. The fumigant is methyl bromide. For softwood, 150 pounds of methyl bromide is required to fumigate a full warehouse of logs. The fumigation cycle including set-up, fumigation, aeration and log removal takes 56 hours. For hardwood, 250 pounds of methyl bromide is required and the fumigation cycle lasts 120 hours.

Softwood Calculation

Hourly = 150 lb/hr methyl bromide

Annual = $8760 \text{ hr/yr} / 56 \text{ hours per fumigation cycle} = 156.4 \text{ fumigation cycles/year}$

$156.4 \text{ fumigation cycles/year} \times 150 \text{ lb methyl bromide/fumigation cycle} \times \text{ton}/2000 \text{ lb} = 11.7 \text{ tpy methyl bromide}$

Hardwood calculation

Hourly = 250 lb/hr methyl bromide

Annual = $8760 \text{ hr/yr} / 120 \text{ hours/fumigation cycle} = 73 \text{ fumigation cycles/year}$

$73 \text{ fumigation cycles/year} \times 250 \text{ lb methyl bromide/fumigation cycle} \times \text{ton}/2000 \text{ lb} = 9.125 \text{ tpy}$

The PTE for the facility is the greater of the hardwood or softwood which in this example is 11.7 tons per year of methyl bromide for softwood fumigation. The facility needs a permit to limit its PTE of methyl bromide. Since methyl bromide is a volatile organic compound (VOC), an Article 6 permit should be issued to limit VOC emissions (as methyl bromide) to less than 10 tons per year. If the facility also fumigates with phosphine, then a state operating permit may be needed to limit the facility's PTE since phosphine is neither a VOC nor a particulate.

If the facility does not want to limit their PTE to below the major source threshold levels, the facility would be required to submit an application for an Article 7 permit (§112(g) case-by-case MACT).